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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,792	10/20/2003	Larry Neil Lewis	132913-1	7574

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GENERAL ELECTRIC COMPANY  
GLOBAL RESEARCH  
PATENT DOCKET RM. BLDG. K1-4A59  
NISKAYUNA, NY 12309

EXAMINER
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THOMPSON, CAMIE S

ART UNIT	PAPER NUMBER
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1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/03/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/689,792	<b>Applicant(s)</b> LEWIS ET AL.	
	<b>Examiner</b> Camie S. Thompson	<b>Art Unit</b> 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed January 8, 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8-12, 16-55, 58-62, 64, 65 and 67-128 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-50 and 81-110 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's amendment and accompanying remarks filed January 8, 2007 are acknowledged.
2. Examiner acknowledges amended claims 1, 16, 51 and 67.
3. Examiner acknowledges cancelled claims 6-7, 13, 56-57, 63 and 66.
4. Examiner acknowledges newly 111-128.
5. The rejection of claims 16 and 67 under 35 U.S.C. 112, second paragraph is overcome by applicant's amendment.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
7. Claims 8 and 57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 8 and 57 are rendered indefinite because they depend from cancelled claims.

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-5, 8, 14, 16-18, 20-22, 24-25, 27-28, 51-55, 58, 64-65, 67-69, 71-76, 78-80 and 11-118, 120, 121, 124-125 and 127-128 are rejected under 35 U.S.C. 102(b) as being anticipated by Hosokawa et al., U.S. Patent Number 6,284,393:

Hosokawa discloses an organic electroluminescent devices comprising a positive electrode, a negative electrode supported on a substrate and an organic layer including an organic light-emitting layer as sandwiched between the two electrodes wherein the positive and negative electrode can be gold, platinum, nickel, palladium, indium zinc oxide, ZnO-Al, Zn-Sn-O, Au/In-Zn-O, PT/In-Zn-O. Additionally, the reference discloses that substrate can be plastic. Example 4 of the reference discloses organic electroluminescent devices discloses an ITO-covered glass substrate wherein CuPc layer is deposited onto the substrate at a thickness of 25 nm, a TPD layer was then deposited at a thickness of 25 nm and an Alq layer (electro-active layer) was then deposited at a thickness of 60 nm. The example also discloses an aluminum-lithium alloy, which is island-like discontinuous, was also deposited at a thickness of 2nm. Example 4 of the reference discloses two metal-containing layers. Column 13, lines 44-53 of the reference discloses that the thin metal film can be platinum or gold. The drawings are described in the reference as having a black absorption layer. The reference also discloses that the electrodes can be conductive oxides such as In-Zn-O. Instant claim 79 has process limitations that are not given any patentable weight.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 9-12, 22-23, 59-62, 74 and 122-123 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa et al., U.S. Patent Number 6,284,393.

Hosokawa discloses an organic electroluminescent devices comprising a positive electrode, a negative electrode supported on a substrate and an organic layer including an organic light-emitting layer as sandwiched between the two electrodes wherein the positive and negative electrode can be gold, platinum, nickel, palladium, indium zinc oxide, ZnO-Al, Zn-Sn-O, Au/In-Zn-O, PT/In-Zn-O. Example 4 of the reference discloses organic electroluminescent devices discloses an ITO-covered glass substrate wherein CuPc layer is deposited onto the substrate at a thickness of 25 nm, a TPD layer was then deposited at a thickness of 25 nm and an Alq layer (electro-active layer) was then deposited at a thickness of 60 nm. The example also discloses an aluminum-lithium alloy, which is island-like discontinuous, was also deposited at a thickness of 2nm. Example 4 of the reference discloses two metal-containing layers. The reference does not disclose that the substrate is polycarbonate, polyolefin, polyester, a polyimide or a polysulfone or an acrylate. However, the reference discloses that the substrate can be made of plastic. A plastic is generic and encompasses a polyester, polycarbonate or polyolefin. Therefore, it would have been obvious to one of ordinary skill in the art to have the substrate be made of polycarbonate, polyolefin, polyimide or polyester since the generic plastic encompasses these materials.

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Hosokawa does not specifically disclose that the discontinuous layer has a mean diameter of less than the wavelength of ultraviolet light, visible light, near infrared light and infrared light.

However, this is an optimizable feature. The reference discloses that the electron injection electrode layer has a light transmittance of not smaller than 50% having a wavelength of from 380 to 700 nm. The mean diameter affects the light that passes adjacent to the electron injection electrode layer. Therefore, it would have been obvious to one of ordinary skill in the art to have a mean diameter of less than the wavelength of ultraviolet light, visible light, near infrared light and infrared light in order to have a device with high luminescent efficiency and good durability wherein light emission can be taken out through the side of the negative electrode.

12. Claims 1, 19, 51, 70 and 119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa et al., U.S. Patent Number 6,284,393 in view of Sakai et al., U.S. Patent Number 4,824,488.

Hosokawa discloses an organic electroluminescent devices comprising a positive electrode, a negative electrode supported on a substrate and an organic layer including an organic light-emitting layer as sandwiched between the two electrodes wherein the positive and negative electrode can be gold, platinum, nickel, palladium, indium zinc oxide, ZnO-Al, Zn-Sn-O, Au/In-Zn-O, PT/In-Zn-O. Example 4 of the reference discloses organic electroluminescent devices discloses an ITO-covered glass substrate wherein CuPc layer is deposited onto the substrate at a thickness of 25 nm, a TPD layer was then deposited at a thickness of 25 nm and an Alq layer (electro-active layer) was then deposited at a thickness of 60 nm. The example also discloses an aluminum-lithium alloy, which is island-like discontinuous, was also deposited at a thickness of 2nm. Example 4 of the reference discloses two metal-containing layers. Hosokowa does not

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disclose that the electro-active is a photovoltaic cell. Sakai discloses a photovoltaic device wherein the metal electrode film can be patterned to form island regions (see Figure 4 and column 10, lines 19-39). Island regions prevent accidental short-circuits. Therefore, it would have been obvious to one of ordinary skill in the art to have the discontinuous electro-active metal layer in photovoltaic device in order to prevent short-circuits in a photovoltaic device.

13. Claims 1, 22-23, 51, 73-74 and 122-123 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa et al., U.S. Patent Number 6,284,393 in view of Swirbel et al., U.S. Patent Number 5,460,922.

Hosokawa discloses an organic electroluminescent devices comprising a positive electrode, a negative electrode supported on a substrate and an organic layer including an organic light-emitting layer as sandwiched between the two electrodes wherein the positive and negative electrode can be gold, platinum, nickel, palladium, indium zinc oxide, ZnO-Al, Zn-Sn-O, Au/In-Zn-O, PT/In-Zn-O. Example 4 of the reference discloses organic electroluminescent devices discloses an ITO-covered glass substrate wherein CuPc layer is deposited onto the substrate at a thickness of 25 nm, a TPD layer was then deposited at a thickness of 25 nm and an Alq layer (electro-active layer) was then deposited at a thickness of 60 nm. The example also discloses an aluminum-lithium alloy, which is island-like discontinuous, was also deposited at a thickness of 2nm. Example 4 of the reference discloses two metal-containing layers. The Hosokawa reference does not disclose the specific plastic substrate. Swirbel discloses a method of forming electrode patterns on a substrate that can be used in electroluminescent displays (see column 1, lines 15-19). Figures 4 and 5 of the Swirbel reference disclose a discontinuous metal layer formed on the substrate wherein the substrate can polyester or polycarbonate (see column 2, lines

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30-49). Plastics are used as substrate to provide flexibility. Therefore, it would have been obvious to one of ordinary skill in the art to have polyester or polycarbonate as the substrates in the Hosokawa reference in order to have a flexible electroluminescent display.

14. Claims 26, 77 and 126 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach or suggest the recited electro-active device, further including the metal oxide being doped with gallium, zinc or combinations thereof.

#### *Response to Arguments*

15. Applicant's arguments filed January 8, 2007 have been fully considered but they are not persuasive. Applicant argues that the Hosokawa reference does not disclose the use of platinum, palladium, gold, silver, ruthenium, osmium, iridium, rhodium, copper or combinations thereof in the plurality of the domains. Column 13, line 44-column 14, lines 12 discloses that the metal layer can be gold or platinum. Additionally, the reference discloses in column 13 and 14 the method for depositing the metal layer, which the method describes the island-like structure. The rejection is maintained.

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

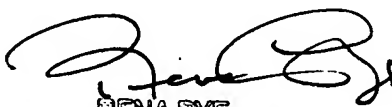


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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RENA DYE  
SUPERVISORY PATENT EXAMINER  
AU 1774